

TRENCH ISOLATION FOR SEMICONDUCTOR DEVICES

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ABSTRACT OF THE DISCLOSURE

In etching trench isolation structures, a pad oxide or sacrificial oxide may be formed with substantially the same (or higher) etch rate as the trench filler. Because the etch rate in the trench area is substantially similar to (or less than) the etch rate in the non-trench area, similar amounts of material are removed in both the trench area and non-trench area in a subsequent etching process.

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Consequently, formation of notches and grooves in the semiconductor structure is minimized. A sacrificial oxide layer may be made by depositing a layer of a suitable material on the surface of a semiconductor structure. By depositing a sacrificial oxide layer instead of thermally growing a sacrificial oxide layer, grooves and the notches in the trench areas are filled by the deposited material.

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